oils per day for two months resulted in an average decline of 6.5 mm of mercury systolic and 4.5 mm of mercury diastolic blood pressure in hypertensive persons. These studies provide further impetus for recommending a heart-healthy diet.

Because ingesting more than 1 oz of alcohol per day may be responsible for a large percentage of hypertensive patients seen in family practice, limiting alcohol intake is an important recommendation.

The direct benefits of exercise on blood pressure control are difficult to isolate from those of the changes that often accompany exercise, such as improved diet, weight loss, and decreased cigarette smoking. Considerable evidence suggests, however, that regular aerobic exercise by itself does effectively reduce blood pressure. Declines in mean diastolic blood pressure from 117 to 97 mm of mercury have been documented after just three months of daily walking or running 3 km (2 mi).

Life-style changes should be encouraged to forestall, minimize, or obviate the need for medication. One study showed that by reducing weight, salt, and alcohol intake, 39% of patients with less severe hypertension previously controlled with medication remained normotensive for four years without requiring any medication.

Using a nonpharmacologic approach to hypertension is an important adjunct for controlling blood pressure. Benefits may include not only reducing the need for medication, but also improving the subjective perception of well-being and increasing quality of life. It is important, however, to monitor the progress of patients placed on a nondrug regimen. If the diastolic blood pressure remains above 90 mm of mercury after employing nonpharmacologic measures for at least six months, then drug therapy should also be considered.

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A New Treatment of Nocturnal Enuresis

ALTHOUGH 2 to 3 million children nationwide suffer some degree of distress because of nocturnal enuresis (bed wetting), there continues to be controversy as to its origin and treatment. Enuresis is defined as a lack of bladder control in a child who has reached an age when urinary control is usually expected. Although most children have achieved control by 4 years of age, some 10% of 6-year-old children and 2% of 14-year-olds have nocturnal enuresis. There is evidence that heredity plays a role, but separating genetic characteristics from family expectations is difficult. The differential diagnosis includes infection, neurogenic urinary bladder, diabetes mellitus, urinary tract anomalies, and emotional problems. Enuresis is primary if bladder control has never been completely present and secondary if urinary incontinence has not occurred for a prolonged period (six months or more). While secondary enuresis is likely to be associated with an underlying illness, infection, or psychosocial stress, the overwhelming majority of cases of primary enuresis are not associated with any of the forementioned causes.

Although studies show that the functional bladder capacity of enuretic children is smaller than that of nonenuretic children, their daytime bladder function is basically normal. Thus, the role of functional capacity is unclear. Conventional therapies for children affected with nocturnal enuresis include setting alarm clocks to awaken the child to go to the bathroom, a regimen of imipramine hydrochloride, and moisture alarms. Unfortunately, some children are only partially helped, and results are less than satisfying to physicians, patients, and parents alike.

Recent studies in Denmark indicate that enuresis may be directly related to an insufficient secretion of antidiuretic hormone (ADH) at night, resulting in a nighttime overproduction of urine. Normal children were found to regulate urine production by increasing ADH levels at night. Enuretic children, however, did not have an increase in ADH levels and produced an abnormally large volume of urine that resulted in bed wetting. Enuretic children were also found to urinate with a full bladder, and, in some cases, were found to repeatedly fill their bladder throughout the night. Having identified these striking physiologic changes in enuretic children, researchers successfully used desmopressin acetate nasal spray (DDAVP), a synthetic ADH, to decrease urine output and stop the enuresis. These early studies led to subsequent well-controlled, double-blind clinical trials that have confirmed that DDAVP is effective in controlling nighttime urine production.

Desmopressin acetate is currently available in a nasal spray pump and has been approved by the US Food and Drug Administration for the treatment of primary nocturnal enuresis. The nasal spray is applied directly to the nasal mucosa, and the dosage should be adjusted according to the individual response. The recommended initial dose for children who are 6 years of age and older is 20 μg (0.2 ml solution) at bedtime, though some patients may respond to less medication. Adjustments up to 40 μg are suggested if there is no response. The manufacturer recommends that half of the dose be administered in each nostril. Side effects are usually mild and are limited to mucosal irritation, with occasional dose-related gastrointestinal upset. Serum electrolyte levels should be checked if therapy is continued beyond seven days.

Although patients have been kept on the medication therapy for extended periods of time, no adequately controlled studies with intranasal DDAVP in primary nocturnal enuresis have been conducted beyond four to eight weeks. The high cost of the medication (more than $60 per month) is a limiting factor to a widespread application of this treatment approach. At the same time, the fact that many people are willing to pay this much for the medication underscores the level of emotional distress that some patients and families experience as a result of nocturnal enuresis.

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